

## **REMARKS**

### **INTRODUCTORY COMMENTS:**

In the Office Action under reply, the Examiner has acknowledged receipt of the Preliminary Amendment filed on October 1, 2001, objected to the drawings as failing to show every feature of the claimed invention, and made a number of formal claim objections. In addition, the Examiner has rejected all pending claims, as follows:

(1) Claims 1-13 and 17-22 stand rejected under 35 U.S.C. §102(b) as anticipated by U.S. Patent No. 5,862,270 to Lopresti et al.; and

(2) Claims 14-16 stand rejected under 35 U.S.C. §103(a) as obvious over Lopresti et al. in view of U.S. Patent No. 5,337,361 to Wang et al.

The objections and rejections are addressed, in part, by the above amendments to the claims and the replacement figures, but are otherwise traversed for reasons that are discussed in detail below.

### **THE ABOVE AMENDMENTS:**

Claims 1, 2, 4, 5, 7-10, and 17-22 have been amended to comply with the Examiner's suggestion regarding the use of the articles "a" and "the." In addition, claim 9 has also been amended to correct an obvious typographical error relating to the dependency of the claim. Accordingly, no new matter has been introduced by any of the amendments, and entry thereof is proper.

### **STATUS OF THE CLAIMS:**

With the above amendments, claims 1-22 are pending, claims 1, 2, 4, 5, 7-10, and 17-22 are amended, and claims 3, 6, and 11-16 remain unchanged.

### **OBJECTION TO DRAWINGS**

The Examiner has objected to the drawings as failing to show every feature of the claimed invention. According to the Examiner, the drawings do not show features such as "array A," "kernal K<sub>m</sub>," "array E," and etc. As a result, the Examiner has required a proposed drawing correction or corrected drawings that show "omitted features."

In response, applicants point out that the invention generally relates to methods of recording and printing user data on a printed medium, barcodes made using such methods,

and methods for reading user data stored in such barcodes. Viewed in proper context, the "omitted features" are ***algorithmic constructs*** associated with the claimed invention, and drawings are not needed to understand the invention. To expedite prosecution, however, applicants have submitted revised the block diagrams of FIGS. 1-3 in an attempt to address the Examiner's objection. Labels have been added to the diagrams to show the features recited in the claims. No new matter has been added. Accordingly, applicants request withdrawal of this objection.

Applicants also note that FIG. 21 as reproduced in U.S. Patent Application Publication No. 2002/0179717 to Cummings et al. lacks the resolution of the originally submitted figure. If it is within the Examiner's control to improve the resolution of the figure, applicants request appropriate corrective action be taken to avoid similar deficiencies in the resolution of the figure if a patent is issued.

#### **CLAIM OBJECTIONS**

The Examiner has objected to claims 1 and 2 as containing informalities relating to the articles "a" and "the." In response, applicants have amended these claims according to the Examiner's suggestions. While no objections have been made against claims 4, 5, 7-10, and 17-22, these claims have also been amended so that the same conventions regarding the usage of the articles are employed for all claims. Thus, withdrawal of this objection is proper and requested.

#### **THE 35 U.S.C. §102(B) REJECTION OVER LOPRESTI ET AL.:**

Claims 1-13 and 17-22 stand rejected as anticipated by Lopresti et al. In issuing the rejection, the Examiner points to various sections of Lopresti et al. as disclosing the elements of the claims. Notably, the Examiner cites column 7, lines 9-36, as disclosing the modulation of a "user data array using a two-dimensional pseudorandom array and formatting the data array to produce a two-dimensional barcode array." In addition, the Examiner points to FIG. 1 of Lopresti et al. as depicting recorded and printed user data that is distributed evenly across a portion of the printed medium.

Applicants respectfully traverse the rejection and point out that a cited reference must disclose each and every element of a claim to anticipate the claim. *In re Spada*, 15 USPQ2d 1655 (Fed. Cir. 1990). Unless there is "identity of invention" such that all claim elements are disclosed in a single reference, there can be no anticipation under 35 U.S.C. §102. Here, the

Examiner has mischaracterized the cited art and the inventive subject matter. As discussed in the specification of the subject application, on page 2, lines 10-21, the invention relates to a novel barcode methodology in which ***user data is distributed evenly across a barcode image***. Due to the ***delocalization of user data*** associated with the invention, the resulting spread-spectrum barcode may be read in its entirety even if a significant fraction or majority of the barcode is obscured. Examples of such spread-spectrum barcodes containing delocalized user data are depicted in FIGS. 5-27 of the application.

In contrast, Lopresti et al. describes a radically different technology that does not relate to the production of a pixel-based two-dimensional barcode array containing user data array that is printed and distributed evenly across a portion of a printed medium. As discussed in the specification on page 2, lines 1-9, ordinary barcode technology such as that of Lopresti et al. suffers from the drawback that user data may be lost if part of the barcode is damaged or obscured. Indeed, even upon a casual comparison of FIG. 1 of Lopresti et al. with FIGS. 5-27 of the subject application, it should be evident that the barcode of Lopresti et al. is significantly different from the exemplary barcodes of the subject application. FIG. 1 of Lopresti et al. merely depicts an ordinary digital barcode printed on the same page as an analog data for a spreadsheet, word processing, or drawing. ***The user data contained in the barcode of Lopresti et al. is localized, not distributed evenly across the portion of the printed medium on which the barcode is printed.***

In addition, Lopresti et al. relates to a barcode technology optimized for data storage whereas the pending claims are directed to a method for recording and printing user data that is optimized for image recovery and temper detection. Contrary to the Examiner's contentions, Lopresti et al. does not disclose the use of ***a two-dimensional pseudo-random kernel  $K_m$  to form a modulated data array  $E$*** . Instead, the section of cited by the Examiner, data is randomized and blocked to a two-dimensional array. That is, the cited section relate to a process facilitate "clocking" rather than modulation, e.g., as recited in step (b) of claim 1 of the subject application. Clocking relates to barcode technology optimized for data storage, not to technology optimized for image recovery and temper detection as set forth in the pending claims.

Furthermore, the technology described in Lopresti et al. is incompatible with the subject matter of the claims. For example, the technology of Lopresti et al. generates a binary or "black and white" image, whereas the invention as set forth in the pending claims may be employed to produce grayscale images. As set forth in Lopresti et al., column 3, lines 25-34, information is

first converted into a data stream having 1s and 0s. If this threshold step were performed on a grayscale image, an unacceptable degree of data degradation would occur.

Thus, applicants submit that the rejection was issued in error and respect request withdrawal of the rejection.

**THE U.S.C. §103(A) REJECTION OVER LOPRESTI ET AL. IN VIEW OF WANG ET AL.:**

Claims 14-16 stand rejected as obvious over Lopresti et al. in view of Wang et al. With respect to claims 14 and 15, the Examiner states that Lopresti et al. fails to teach or fairly suggest the obfuscation of up to 80% of the barcode. However, the Examiner cites Wang et al., column 4, lines 52-61, and FIG. 1B, as providing the omitted teaching. With respect to claim 16, the Examiner also recognizes that Lopresti et al. and Wang et al. fail to teach or fairly suggest that the obfuscation is caused by damage or partial destruction of the printed medium. Nevertheless, the Examiner contends that it is obvious to modify the combined teachings of Lopresti et al. and Wang et al. to provide a more reliable system, wherein lost, damaged, or distorted information can be recovered.

Applicants respectfully traverse this rejection, because the claimed combination would not be taught if the references were read together. As admitted by the Examiner, Lopresti et al. does not teach or suggest the obfuscation of the barcode. In addition, the Examiner has mischaracterized the teaching of Wang et al. Contrary to the Examiner's characterizations, the section of Wang et al. cited by the Examiner does not teach or suggest the obfuscation of the barcode. Although the cited section pertains to a record that contains an image portion and an information portion, the information portion overlies but ***does not obscure*** the image portion. See FIG. 1, claim 1 as amended by the Reexamination Certificate Issued Under 35 U.S.C. 307, and claim 2 as originally issued. Only through impermissible hindsight would one view Wang et al. as teaching or suggesting the obfuscation of the barcode.

Furthermore, as discussed above, Lopresti et al. fails to provide any disclosure concerning the use of ***a two-dimensional pseudo-random kernel  $K_m$  to form a modulated data array  $E$***  or user data that is ***distributed evenly*** across printed medium. The teachings of Wang et al. fail to correct such deficiencies of Lopresti et al. Since neither of these patents, either by themselves or in combination, provides any disclosure relating to data modulation or evenly-distributed or delocalized data or addresses the obfuscation of data, applicants request withdrawal of this rejection.

CONCLUSION

For all of the above reasons, it is submitted that the application comports with all formal requirement for patentability, and that the pending claims define an invention that is novel and nonobvious over the art. As the application should now be in condition for allowance, a prompt indication to that effect would be appreciated.

If there are any questions concerning this communication, the Examiner is welcome to contact the undersigned attorney at (650) 330-0900.

Respectfully submitted,

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